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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,931	01/16/2001	Bi Le-Khac	01-2532B	4319

24114 7590 03/31/2003  
LYONDELL CHEMICAL COMPANY  
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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT PAPER NUMBER

1713

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/760,931	<b>Applicant(s)</b> BI LE-KHAC ET AL	
	<b>Examiner</b> Tatyana Zalukaeva, Ph.D	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 January 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 9, 10, 12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9, 10, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

### DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action presented in Brief is persuasive and, therefore, the finality of that action is withdrawn.

2. Upon further consideration, Applicants arguments have been found persuasive and grounded, and therefore rejections under 35 U.S.C. 102(e) over Nagano is withdrawn.

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3. Claims 1-5, 7, 9, 10, 12 and 13 are pending.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-5, 7, 9, are rejected under 35 U.S.C. 102(b) as being anticipated by Nagasawa et al (U.S. 5,310,813)

Nagasawa discloses a continuous process that comprises polymerizing macromonomer having a radical polymerizable group, such as macromonomers listed in col.4, lines 40-50, wherein polyethylene glycol Methacrylate is expressly named (col.4, line48, 49) with another radical polymerizable monomer in an organic solvent (abstract; col. 6, lines 55-60). The polymerization temperature is 60-100°C (col. 6,

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lines 64, 65). Acrylic monomer that can be copolymerized with macromonomer is taught in col. 6, lines 4-13, among them acrylic and methacrylic acids are named in line 8.

Polymerization initiator is azo type radical initiator, described in col. 6, lines 66-68, or the like, organic peroxide or the like (col. 7, lines 1-4).

Organic solvents of Nagasawa are listed in col. 6, lines 60-65.

Polymerization in solvent proceeds in the presence of chain transfer agent in order to effectively control the molecular weight of branched polymer, mercaptan derivatives as chain transfer agents are taught in col. 7, lines 5-11.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagasawa et al. in combination with Bair et al. (U.S. 5,789,488).

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Nagasawa disclose the use of conventional free radical initiators, such as Azo initiators, and the like, or another type of conventional initiators, such as peroxides, or the like, thus motivating a person skilled in the art to regard other conventional free radical initiators. Nagasawa does not disclose the use of persulfate as an initiator. It is recognized in the art and is admitted by Applicants in their disclosure that azo compounds, peroxides and persulfates are all conventional initiators, and are all routinely used in the art.

Thus Bair teaches that **conventional initiators such as azo compounds, persulfates, peroxides** may also be employed in radical polymerization, and further emphasizes that the aforementioned polymerization methods (*initiator choice*) do not limit the synthesis of the copolymers. Based on the recognizes equivalency of persulfate

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and peroxide and azo initiators for radical polymerization, substitution of equivalent compounds requires no express motivation, as long as the prior art recognizes equivalency, *In re Fount* 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. V. Linde Air products Co.* 85 USPQ 328 (USSC 1950).

7. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagasawa in view of Nagano et al (U.S. 5,834,576).

Nagasawa performs radical polymerization as instantly claimed, utilizing a solvent polymerization, however, he does not employ lower alcohols, as per instant claims 12 and 13.

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Nagano discloses solution polymerization of macromonomers as instantly claimed with other comonomer, identical to that instantly claimed. Process of Nagano can be performed batch-wise or continuously. Examples of the solvent used for the solution polymerization are: water; alcohols, such as methyl alcohol, ethyl alcohol, and isopropyl alcohol. However, the solvent is not particularly limited **if it does not interfere with the reaction**. Considering the solubility of monomers as starting material and the resulting acrylic acid polymer, and the use of the acrylic acid polymer, it is desirable to use water and/or lower alcohols having 1 to 4 carbons among the above solvents. Thus Nagano produces a motivation for using lower alcohols in any other similar process that employs the same monomers. Therefore, a person skilled in the art would have found it obvious at the time the invention was made to employ lower alcohols of Nagano's

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process in the process of Nagasawa, motivated by the advantages revealed by Nagano, with the reasonable expectation of success.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva, Ph.D whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703)308-24-50. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
**Tatyana Zalukaeva, Ph.D.**  
**Primary Examiner**  
**Art Unit 1713**

March 21, 2003